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Program Release Form

Approved at November 23, 2021 EPAC

Link to Meeting Minutes

Date Prepared: 11/15/2021	**Project Title: DSCADA LTC Controls Upgrade** [redacted]
Company: Eversource CT	**Facility Name:** [redacted]
Organization: Asset Management	**Project Number: CS00501**
Project Initiator: [redacted]	**Class(es) of Plant: D SS**
Project Manager: [redacted]	**Project Category: Stations - SCADA**
Project Sponsor: [redacted]	**Project Type: Program**
Program Level Title: DSCADA LTC Receivers Program Upgrades	**Capital Investment Part of Original Operating Plan? Yes**
Program Level Project Number: CS00407	**O&M Expenses Part of the Original Operating Plan? N/A**
Total Request: $1,458K	**Estimated in service date(s): 03/25/2022**
	Facility Type (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution

Executive Summary

This Program Release is requesting dollar authorization in accordance with the program level criteria specified in Program Level PAF - DSCADA LTC Receivers Program Upgrades (CS00407) (see Attachment E) and this document for this specific location. The scope for this Program Release is defined in the Program Level PAF and in this document with modifications necessary that address this location. Location/site modification from the Program Level PAF shall be fully described herein for scope and unit cost.

This Program Release is requesting $1,458K to [redacted]

[redacted]

The Program Level PAF CS00407 had $250K of initial funding approved in PowerPlan on May 25, 2021. As of October 25, 2021, approximately $30K has been charged to WO CS009017, under the older program CS00090 as noted in the Program Level PAF, for engineering and

design at Weston 21M substation. These funds will be journaled to this new release upon approval.

Project Scope

[redacted]

Scope of Work

[redacted]

Major Material to be Purchased

1. Three (3) LTC DSCADA Cabinet Remote Terminal Units (RTU), one (1) for each transformer.
2. Three (3) LTC tap position monitors, one (1) for each transformer.
3. Two (2) M-2001D Beckwith tap changer controls with adapter panels.

A constructability review was performed on July 14, 2021 (see Attachment C).

Unitized Release Cost

Note: Dollar values are in thousands

Line item Category	*Unitized Program Level PAF Cost	Release Cost	Delta
1. ROW / Easements / Land Acquisition	$	$	$
2. Environmental Approvals / Permits	$	$	$
3. Outreach	$8	$1	($7)
4. Siting Approvals / Permits	$	$	$
5. Engineering / Design	$49	$41	($8)
6. Materials (Eversource purchased)	$71	$72	$1
7. Construction (incl matl's by contractors)	$343	$390	$47
8. Testing / Commissioning	$249	$263	$14
9. Project Mgmt Team	$33	$14	($19)
10. Removals	$6	$4	($2)
11. Other	$	$0	$
12. Risks	$205	$105	($100)
SUBTOTAL DIRECTS W/ RISKS	**$964**	**$890**	**($74)**
13. Indirects/Overhead	$510	$521	$11
14. AFUDC	$41	$8	($33)
PROJECT TOTAL – BASELINE BUDGET	**$1515**	**$1,419**	**($96)**
15. Contingency	$	$39	$39
***TOTAL CAPITAL REQUEST**	**$1515**	**$1,458**	**($57)**
16. Reimbursables/Customer Contribution	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	**$1515**	**$1,458**	**($57)**
O&M	$		
Total Request	**$1515**	**$1,458**	**($57)**

*CT program unit cost (Option #3) is $554,100 per transformer (upgrade, new conduit, and new control) and has been used in the unitized PAF cost for the 21M-4X and 21M-5X transformers. CT program unit cost (Option #2) is $406,100 per transformer (upgrade, new conduit, and existing control) and has been used in the unitized PAF cost for the 21M-6X transformer.

Justification for Modification

1. **ROW / Easements / Land Acquisition: $0 –**. None required based on Constructability review.
2. **Environmental Approvals / Permits: $0 –** No approvals nor permit needs identified in Constructability review.
3. **Outreach: – ($7K)** Unit price per transformer reflects outreach required at one station. A savings is realized as any required outreach for all three (3) transformers can be accomplished simultaneously.
4. **Siting Approvals / Permits: $0 –** No changes from the Program Level PAF.
5. **Engineering / Design: ($8K) -** No major changes from Program Level PAF.
6. **Materials (by Eversource): $1K -** No major changes from Program Level PAF.
7. **Construction (including materials supplied by contractors): $47** – Increased labor and materials for construction support based on vendor quotes unique to this release.
8. **Testing / Commissioning: $14K –** Increased labor for testing/commissioning support based on vendor quotes.
9. **Project Management Team: ($19K)** Savings recognized in economies of scale.
10. **Removals: ($2K) –** No major changes from the Program Level PAF.
11. **Other: $0 –** No changes from the Program Level PAF.
12. **Risk: ($100K) –**. Savings recognized in economies of scale. Only two (2) of the three (3) original Beckwith controls are being replaced.
13. **Indirects/Overhead: $11K –** Indirects are proportional to direct costs.
14. **AFUDC: ($33K) –** AFUDC is proportional to direct costs.
15. **Contingency: $39K –** Contingency included to account for project unknowns.
16. **Reimbursables/Customer Contribution: $0 –** No changes from the Program Level PAF.

O&M: $0 - No changes from the Program Level PAF.

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Project Costs Summary for (3) transformers

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2021 to Go	2022	Total
1. ROW / Easements / Land Acquisition	$		$	$	$
2. Environmental Approvals / Permits	$		$	$	$
3. Outreach	$		$	$1	$1
4. Siting Approvals / Permits	$		$	$	$
5. Engineering / Design	$	$30	$	$11	$41
6. Materials (Eversource purchased)	$		$69	$3	$72
7. Construction (incl matl's by contractors)	$		$	$390	$390
8. Testing / Commissioning	$		$	$263	$263
9. Project Mgmt Team	$		$	$14	$14
10. Removals	$		$	$4	$4
11. Other	$		$	$	$
12. Risks	$		$	$105	$105
SUBTOTAL DIRECTS W/ RISKS	**$250**	**$30**	**$69**	**$791**	**$890**
13. Indirects/Overhead	$		$10	$511	$521
14. AFUDC	$		$2	$6	$8
PROJECT TOTAL – BASELINE BUDGET	**$250**	**$30**	**$81**	**$1308**	**$1419**
15. Contingency	**$**		**$**	$39	$39
TOTAL CAPITAL REQUEST	**$250**	**$30**	**$81**	**$1347**	**$1,458**
16. Reimbursables/Customer Contribution	$	$	$	$	$
PROJECT TOTAL (LESS REIMBURSABLES)	**$250**	**$30**	**$81**	**$1,347**	**$1,458**
O&M	$	$	$	$	$
TOTAL REQUEST	**$250**	**$30**	**$81**	**$1,347**	**$1,458**

Risk of $105K included for severe weather, delays, and OT ($51K), potential UG obstructions $24K and design development ($30K).

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Breakout Costs

Note: Dollar values are in thousands

Line item Category	Prior Authorized	Actuals to Date	2021	2022	Total
ST Labor		$30	$	$31	$60
OT Labor			$	$	$
Outside Services Labor			$	$648	$648
Materials*			$69	$3	$72
Removals			$	$4	$4
Other			$	$146	$146
Indirects			$10	$511	$521
AFUDC			$2	$6	$8
TOTAL CAPITAL REQUEST - W/O REIMBURSABLES	**$250**	**$30**	**$81**	**$1,348**	**$1,458**

*All materials including Eversource purchased and outside service purchased. Note that outside service purchased material included in construction in project cost summary above

Future Financial Impacts:

Provide below the estimated future costs that will result from the project: N/A
Note: Dollar values are in thousands:

Future Costs	Year 2021__	Year 20__	Year20__	Year 20__+	Total Future Project Costs
Capital		$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other costs noted above: **Only Capital expenditure for 2021. No O&M, nor Other**.

What functional area(s) will these future costs be funded in? **N/A**

If this is other than a Reliability Project, please complete the section below.

This is a reliability project. This section is N/A

Provide below the estimated financial benefits that will result from the project: N/A
Note: Dollar values are in thousands:

Future Benefits	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Benefits
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other benefits noted above: N/A

What functional area(s) will these benefits be reflected in? **N/A**
A representative from the respective functional area is required to be included as a project approver.

Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

None

Is there an ARO associated with this project?

N/A

Are there other environmental cleanup costs associated with this project?

None known at this time.

Alternatives considered with cost Estimates

No changes from the Program Level PAF.

Regulatory Approvals

N/A

Risks and Risk Mitigation Plans

Risk allocation is included in the estimate for severe weather, delays, and overtime and design development.

Contingency

$39K contingency is included for project unknowns.

Project Schedule

Milestone/Phase Name	Estimated Dates
Program Level Initial Funding Approval (CS00407)	February 2021
Engineering IFC - Completed	November 12, 2021
EPAC Meeting – Release Presentation	November 23, 2021
Material Received	January 3, 2022
Construction Start	January 3, 2022
Construction Completion	March 2022
ISD	March 25, 2022

See Attachment B for the P6 schedule.

Attachments

- Attachment A – Attachment A - Engineering Estimate [redacted] DSCADA LTC Upgrade CS00501 12032021
- Attachment B - P6 Schedule [redacted] DSCADA LTC Upgrade 10_21_2021
- Attachment C - Constructability Review [redacted] DSCADA LTC Upgrade CS00501 09242021
- Attachment D – [redacted] Nomenclature Diagram
- Attachment E - Program Level PAF - DSCADA Load Tap Changer (LTC) Receivers Program Upgrades CS00407

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Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted]	**Project Number: CS00501**

Facility Type: ☐ BPS ☐ BES ☐ PTF ☐ non-PTF ☐ CIP ☒ Distribution

PLANNING	
Is a NX-9 required?	No
Is an ISO-NE PAC presentation required?	No
ISO-NE Presentation Date (if completed):	Enter Date
Cost in ISO-NE Presentation ($M) (if completed):	Enter Cost ($M)
Is a PPA required?	No
Is a TCA Application Required?	No
TCA Submittal Date (if submitted):	Enter Date
Cost in TCA Submittal ($M) (if submitted):	Enter Cost ($M)
Enter ISO-NE RSP / Asset Condition ID, if assigned:	Enter ISO-NE ID
PLANNING/PROTECTION & CONTROLS	
Are RAS/SPS/UVLs affected?	No

OPERATIONS			
Outage Required?	☒ Primary Equipment (Power Transfer)	☐ Secondary Equipment (P&C only)	☐ Outage Not Required
Do SCLL Conditions Exist?	No		
Has an outage schedule been approved?	No		
Are Operations & Maintenance procedures/training required?	No		

STANDARDS	
Does the project include standard equipment and designs?	Yes
SUBSTATION ENGINEERING	
Does this impact Revenue Metering	No
Is preliminary short circuit/ breaker duty analysis required?	No
Are there any changes to the baseline audible noise?	No
Is there an impact to the existing ground grid?	Yes
Is a Transient Over Voltage (TOV) analysis required?	No

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Project Checklist - Transmission & Substation Capital Project	
Project Name: [redacted]	**Project Number: CS00501**
P&C ENGINEERING	
OP-22 - Are PMUs and DDR required?	No
If BPS, is an NPCC Directory #4 presentation required?	No
Are ISO-NE OP-24 Appendix B updates necessary?	No
TRANSMISSION LINE ENGINEERING	
Are there any changes that affect the baseline EMF?	No
Are there any changes that affect the baseline EMI?	No
SITING	
Is a Siting filing required? *(If yes, list in regulatory approvals section)*	No
PERMITTING	
Is there any permitting required? *(If yes, list in regulatory approvals section)*	No
SITING & CONSTRUCTION SERVICES (OUTREACH)	
What is the level of outreach expected?	Low
INITIATOR	
Has a field constructability review been completed?	Yes
INVESTMENT RECOVERY	
Does the project require development of an Investment Recovery plan?	No
COST ESTIMATING	
What team/firm prepared the cost estimate?	Estimate was prepared by Eversource Engineering
Name of the person who prepared the estimate:	[redacted]
Was the estimate reviewed by Eversource Estimating?	Yes - Full Review

Cost Estimate Backup Details

See Attachment A for the detailed cost backup file.

ESTIMATE SUMMARY

Project Title [redacted] - DSCADA LTC UPGRADE
Project Number: CS00501
WO & Task #: CS009017
Estimate revision #: 01
Estimate Type - Station work

Estimate #: C-21-726
Estimate done by [redacted]
In Service date (5/31/2022)

Template Revision #01.00a

All Estimate Summary for PP4 Calc (escalation separate)

Estimate #: C-21-726
Date of Estimate:10/04/2021

Project Number: CS00501
WO & Task #: CS009017

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	ROW / Easements / Land purchases														
2	Environmental Approvals / Permits														
3	Outreach	$1,400	0.2%	0.1%		$100	$1,300								
4	Siting Approvals / Permits	$200	0.0%	0.0%			$200								
5	Engineering / Design	$41,000	4.6%	2.6%	$29,500		$11,500								
6	Materials (Eversource purchased)	$71,700	8.1%	4.9%		$68,600	$3,100								
7	Construction (Incl mat'ls by contractor)	$390,100	43.8%	26.8%			$390,100								
8	Testing / Commissioning	$263,300	29.6%	18.1%			$263,300								
9	PMT Project Mgmt Team	$13,700	1.5%	0.9%			$13,700								
10	Removals	$3,600	0.4%	0.2%			$3,600								
11	Other														
12	Risks	$105,000	11.8%	7.2%			$105,000								
125	**Project Directs Total w/Risks**	**$890,000**	100.0%	61.0%	**$29,500**	**$68,700**	**$791,800**								
13	Indirects/Overhead	$521,000		35.7%		$10,200	$510,800								
14	AFUDC	$7,700		0.5%		$1,700	$6,000								
126	**Project Total - Baseline Budget**	**$1,418,700**		97.3%	**$29,500**	**$80,600**	**$1,308,800**								
15	Contingency	$39,400		2.7%			$39,400								
	Project Total - Funding Approval Level	**$1,458,100**		100.0%	**$29,500**	**$80,600**	**$1,348,000**								
16	Reimbursables/Customer Contribution														
	Project Total (less reimbursables)	**$1,458,100**			**$29,500**	**$80,600**	**$1,348,000**								
	Cost per key qty (if appl)	486,033	$'s / EA												
	Amount of Escalation included above	$34,900					$34,900								
9	Total materials - Eversource	$71,700				$68,600	$3,100								
	Total materials - Contractor														
	Total materials	$71,700				$68,600	$3,100								

NOTE: Risk / Contingency is 11% of Project Total Costs (Incl escal/Indirects/AFUDC but excl reimb.)

Estimate Range	**-25%**	**25%**	
	$1,094,000	**$1,823,000**	

	TOTAL w/ escal broken out
ROW / Easements / Land purchas	$ -
Environmental Approvals / Permit	$ -
Outreach	$ 1,400
Siting Approvals / Permits	$ 200
Engineering / Design	$ 40,700
Materials (Eversource purchased	$ 71,700
Construction (Incl mat'ls by contr	$ 378,800
Testing / Commissioning	$ 255,600
PMT Project Mgmt Team	$ 13,300
Removals	$ 3,500
Other	$ -
Risks	$ 105,000
	$870,200
Indirects/Overhead	$ 506,100
AFUDC	$ 7,600
	$ -
	$1,383,900
	$ -
Contingency	$ 39,400
	$1,423,300
	$ -
	$ -
	$1,423,300
	$ 34,900
Excel total	**$1,458,200**
Check total	$100

COMMENTS:

Project Scope:
Key qty's and UOM (tie to inputs on est sheets)

3	EA

[redacted]

Major materials
- Three(03) CABINET, ENCLOSURE, LTC DSCADA, AL,24 IN X 18 IN X 14 IN .
- Three (03) MONITOR, LTC TAP POS, PROGRAMMABLE, 120VAC, 4 TO 20 MA ANALOG OUTPUT, RS-232.
- Two (02) M-3001D Beckwith tap changer controls

Assumptions/Clarifications:
Indirect rates based on: 11 - OT Station work

Note
1.This estimate assumes all construction (electrical, test and civil) will be outsourced. each transformer will need to be de-energized for 5 days for installation, and testing will take place partially during the outage and upon energization.
2.The estimate include manhours for Lead Commission Engineer, Construction Representative, Electrical, Test and Civil
3.Estimated risks are assumed to be 7% of the project total cost as per the estimating group recommendations
4.DSCADA commissioning and switching will be done in house
5.Each transformer will be taken out of service for few hours to complete testing
6.Estimate assumes existing communication are in good working condition.
7.Drawings have been issued and all material have been ordered
8.The transformer alarms will not be modified and will not be taken back to the SEL-2240 Axion.

RISKS

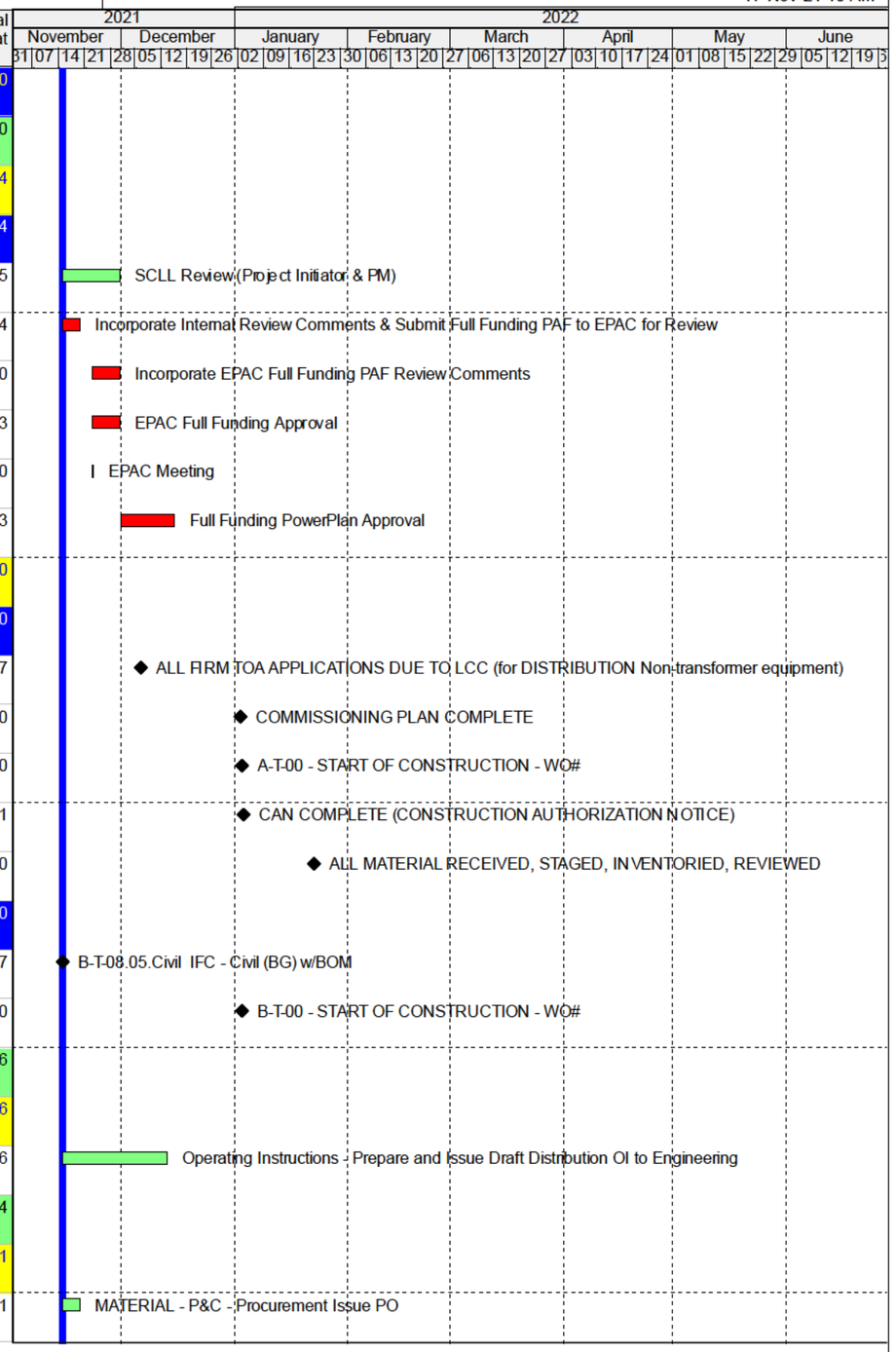
Potential UG Obstructions	$	24,000
Severe Weather Delays OT	$	51,000
Design development	$	30,000

UNESCALATED LINE ITEM DOLLARS

Project Number CS003501
Date of Estimate 10/04/2021
Estimate revision # 01

Escalation Rate		E Rate	$	53									
			Prior		2021			22		1		TOTAL	
	R		Hrs	DOLLARS	Hrs	DOLLARS			DOLLARS				DOLLARS
CSTXX-CONSTRUCTION													
Electrical Construction	LT												
General Construction	LT												
SCADA / Automation	LT								$6,360				$6,360
Telecom - Field	LT												
Construction Reps (Internal)	LT												
Support Switch/Tag	LT								$11,448				$11,448
Other (specify)	LT												
Other (specify)	LT												
Other (specify)	LT												
LT Total									$17,808				$17,808
Employee Expenses	AE	5%							$890				$890
Construction Purchased Material	AM	1%							$3,054				$3,054
Outside Construction Vendor	AO								$308,301				$308,301
Sales tax on Constr. Vendor													
Vehicles (now in Indirects section)	AV												
Inspection services (Outside Vendor)	AO												
Construction Rep (Outside vendor)	AO								$54,720				$54,720
Rents and Leases	BR												
CSTXX Subtotal									$381,833				$381,833
Escalation													
CSTXX Total									$381,833				$381,833
ENRXX-TG ENGINEERING/DESIGN													
Project Services/Drafting	LT								$1,896				$1,896
T- Line Engineering/Design	LT												
D- Street Engineering/Design	LT												
CMI Engineering/Design	LT								$1,908				$1,908
Substation (T) Engineering/Design	LT												
Substation (D) Engineering/Design	LT								$1,272				$1,272
Protection & Controls Engineering	LT								$3,180				$3,180
Survey Engineering	LT												
SCADA / Automation Engineering	LT												
Telecom Engineering	LT								$1,272				$1,272
Other - PP Actuals	LT			$29,531									$29,531
Other - Project Engineer	LT								$1,272				$1,272
LT Total				$29,531					$10,000				$40,131
Employee Expenses	AE	5%							$530				$530
Contractor Engineering - T-Lines	AO												
Contractor Engineering - D-Street	AO												
Contractor Engineering - T -Station	AO												
Contractor Engineering - D-Station	AO												
Contractor Engineering - PAC	AO												
Contractor Engineering - Survey	AO												
Contractor Engineering - SCADA / Automation	AO												
Contractor Engineering - Telecom	AO												
Contractor Engineering - Specify	AO												
Contractor Engineering - Specify	AO												
Contractor Engineering - Specify	AO												
Vehicles (now in Indirects section)	AV												
ENRXX Subtotal				$29,531					$11,130				$40,661
Escalation													
ENRXX Total				$29,531					$11,130				$40,661
LNDXX-TG LAND													
Real Estate	LT												
Employee Expenses	AE	5%											
Purchase Land	AM												
Vehicles (now in Indirects section)	AV												
Fees and Payments	BF												
LNDXX Subtotal													
Escalation													
LNDXX Total													
MATXX-TG MATERIAL													
Eversource	AM					$66,000							$66,000
Outside Services	AM												
	AM												
Freight													
Sales Tax Eversource/outside services	3.9%	3.9%				$2,600							$2,600
Other													
MATXX Subtotal						$68,600							$68,600
Escalation													
MATXX Total						$68,600							$68,600
PSMXX-PROJECT MANAGER & SUPPORT													
Project Management (PM)	LT												
Project Planning/Cost (PP)	LT												
Contracts/Purchasing (CP)	LT												
System Planning	LT												
Environmental	LT												
SCS - Notification	LT					$7			$65				$72
Legal	LT												
Estimating	LT								$1,272				$1,272
Siting - Local Zoning	LT								$200				$200
Asset Management	LT												
Other -	LT												
Other -	LT												
Other -	LT												
Other -	LT												
LT Total						$7			$1,537				$1,544
Employee Expenses	AE	5%							$77				$77
Project Support Vendor - PM	AO								$12,000				$12,000
Project Support Vendor - PP	AO												
Project Support Vendor - CP	AO												
Project Support Vendor - System Planning	AO												
Project Support Vendor - Environmental	AO												
Project Support Vendor - SCS - Notification	AO					$130			$1,240				$1,370
Project Support Vendor - Legal	AO												
Project Support Vendor - Estimating	AO												
Project Support Vendor - Siting - Local Zoning	AO												
Project Support Vendor - Asset Management	AO												
Project Support Vendor - Other	AO												
Project Support Vendor - Other	AO												
Project Support Vendor - Other	AO												
Project Support Vendor - Other	AO												
Vehicles (now in Indirects section)	AV												
Property or CMP tax large proj. allowance	BR												
	BR												
Fees and Payments - Environmental	BF												
Fees and Payments - Siting	BF												
Fees and Payments - Other	BF												
PSMXX Subtotal						$137			$14,854				$14,991
Escalation													
PSMXX Total						$137			$14,854				$14,991
RMXX-TG REMOVAL													
Engineering/Design	LT												
Internal Construction	LT												
LT Total													
Employee Expenses	AE	10%											
Outside Services	AO												
Contractor Labor	AO								$3,456				$3,456
Vehicles (now in Indirects section)	AV												
Rents and Leases	BR												
RMXX Subtotal									$3,456				$3,456
Escalation													
RMXX Total									$3,456				$3,456
TSTXX-TG TEST													
Test / Field Engr. Labor (In House)	LT												
Lead Commissioning Engr. (LCE) (Internal)	LT												
Employee Expense	AE	10%											
Test / Field Engr. Labor (contractor)	AO								$162,000				$162,000
Lead Commissioning Engr. (LCE) (contactor)	AO								$93,600				$93,600
Vehicles (now in Indirects section)	AV												
TSTXX Subtotal									$255,600				$255,600
Escalation						-							
TSTXX Total									$255,600				$255,600
SUBTOTAL PROJECT DIRECT COST			-	$29,531		$68,737			$668,875		4,224		$768,141
Risk													
Risk									$105,000				$105,000
					$ -			$ -					
Risk Total					$ -			$ -	$105,000				$105,000
TOTAL PROJECT DIRECT COST (w risk)			-	$29,531		$68,737			$773,875		4,224		$873,141
INDIRECTS													
Non-Productive Time Allocation (ZNP)	15.1%					$1			$4,507				$4,508
Payroll Benefits Allocation (ZPR) Incl NPT	44.0%								$9,015				$9,015
Gen SVC OO Overhead (ZGA) Incl NPT	75.0%					$6			$10,473				$10,479
E&S Allocations (ZBB,ZBL,ZBN)	60.0%					$86			$411,790				$411,876
A&AE Allocations (ZAA)	1.8%					$460			$13,783				$14,043
Stores Expense Allocation (ZST)	8.0%					$5,280							$5,280
Lobby Stock													
MOEC (ZM)	6.0%					$3,969			$37,932				$41,901
Vehicles (ZV)	28.0%					$2			$6,365				$6,367
Indirects Subtotal						$10,204			$496,865				$508,069
TOTAL PROJECT COST - Direct & Indirect (excl APUDC)				$29,531		$78,941			$1,267,788				$1,376,256
APUDC													
APUDC (ZX)					4.81%	$1,059		4.81%	$6,964		0		$7,823
In Service Dollars						-			-				
Cumulative ISB													
APUDC Subtotal						$1,059			$6,964				$7,823
TOTAL PROJECT COST - Baseline Budget				$29,531		$80,000			$1,273,722				$1,383,883
Contingency													
Contingency									$39,433				$39,433
Other				$ -		$ -			$ -				
Contingency SubTotal									$39,433				$39,433
TOTAL PROJECT COST - Approved Funding				$29,531		$80,000			$1,313,155				$1,423,356
Reimbursables / Customer Contribution													
Reimbursables / Customer Contribution (enter as negative)				$ -		$ -			$ -				

Activity Flag	Activity ID	Activity Name	At pletion	Start	Finish	Resources	Activity Scheduler	Total Float
CS00501 [redacted] DSCADA LTC Controls Upgrade			136	15-Nov-21 08 AM	31-May-22 04 PM			0
CS00501.01 INITIALIZATION AND SCOPE DEVELOPEMENT			46	15-Nov-21 08 AM	22-Jan-22 04 PM			90
CS00501.01.09 Project Initiation			22	15-Nov-21 08 AM	15-Dec-21 04 PM			114
CS00501.01.09.3 EPAC Full Funding			22	15-Nov-21 08 AM	15-Dec-21 04 PM			114
	DE1700	SCLL Review (Project Initiator & PM)	11	15-Nov-21 08 AM	30-Nov-21 04 PM	[redacted]		125
PAF Submit	PAFF2100	Incorporate Internal Review Comments & Submit Full Funding PAF to EPAC for Review	5	15-Nov-21 08 AM	19-Nov-21 04 PM			-4
	PAFF2200	Incorporate EPAC Full Funding PAF Review Comments	5	23-Nov-21 08 AM*	30-Nov-21 04 PM			0
EPAC-F	FF1000	EPAC Full Funding Approval	5	23-Nov-21 08 AM	30-Nov-21 04 PM	Eversource Project Approval		-13
PAF Submit	PAFF2105	EPAC Meeting	1	23-Nov-21 08 AM*	23-Nov-21 04 PM			0
PPA-FF	FF1010	Full Funding PowerPlan Approval	11	01-Dec-21 08 AM	15-Dec-21 04 PM	Eversource Project Approval Committee		-13
CS00501.01.12 T-Minus Milestones			69	15-Nov-21 08 AM	22-Jan-22 04 PM			-20
CS00501.01.12.1 T-Minus Milestones "A"Electrical			47	06-Dec-21 04 PM	22-Jan-22 04 PM			-20
	AT0409	ALL FIRM TOA APPLICATIONS DUE TO LCC (for DISTRIBUTION Non-transformer equipment)	0		06-Dec-21 04 PM			27
	AT1301	COMMISSIONING PLAN COMPLETE	0		02-Jan-22 04 PM			0
SOC	AT00	A-T-00 - START OF CONSTRUCTION - WO#	0	03-Jan-22 08 AM*				0
	AT0203	CAN COMPLETE (CONSTRUCTION AUTHORIZATION NOTICE)	0		03-Jan-22 04 PM			-1
	AT0401	ALL MATERIAL RECEIVED, STAGED, INVENTORIED, REVIEWED	0		22-Jan-22 04 PM			-20
CS00501.01.12.2 T-Minus Milestones "B" Civil			49	15-Nov-21 08 AM	03-Jan-22 08 AM			0
BG-IFC	BT0805C	B-T-08.05.Civil IFC - Civil (BG) w/BOM	0		15-Nov-21 08 AM			-7
SOC	BT00	B-T-00 - START OF CONSTRUCTION - WO#	0	03-Jan-22 08 AM*				0
CS00501.05 ENGINEERING & DESIGN			20	15-Nov-21 08 AM	13-Dec-21 04 PM			116
CS00501.05.04 P&C Engineering			20	15-Nov-21 08 AM	13-Dec-21 04 PM			116
	DSSE-450	Operating Instructions - Prepare and Issue Draft Distribution OI to Engineering	20	15-Nov-21 08 AM	13-Dec-21 04 PM			116
CS00501.06 MATERIAL PROCUREMENT			46	15-Nov-21 08 AM	22-Jan-22 04 PM			-14
CS00501.06.01 MATERIAL FOR P&C			38	15-Nov-21 08 AM	22-Dec-21 04 PM			11
	DSSE-980	MATERIAL - P&C - Procurement Issue PO	5	15-Nov-21 08 AM*	19-Nov-21 04 PM	Purchasing Department		11



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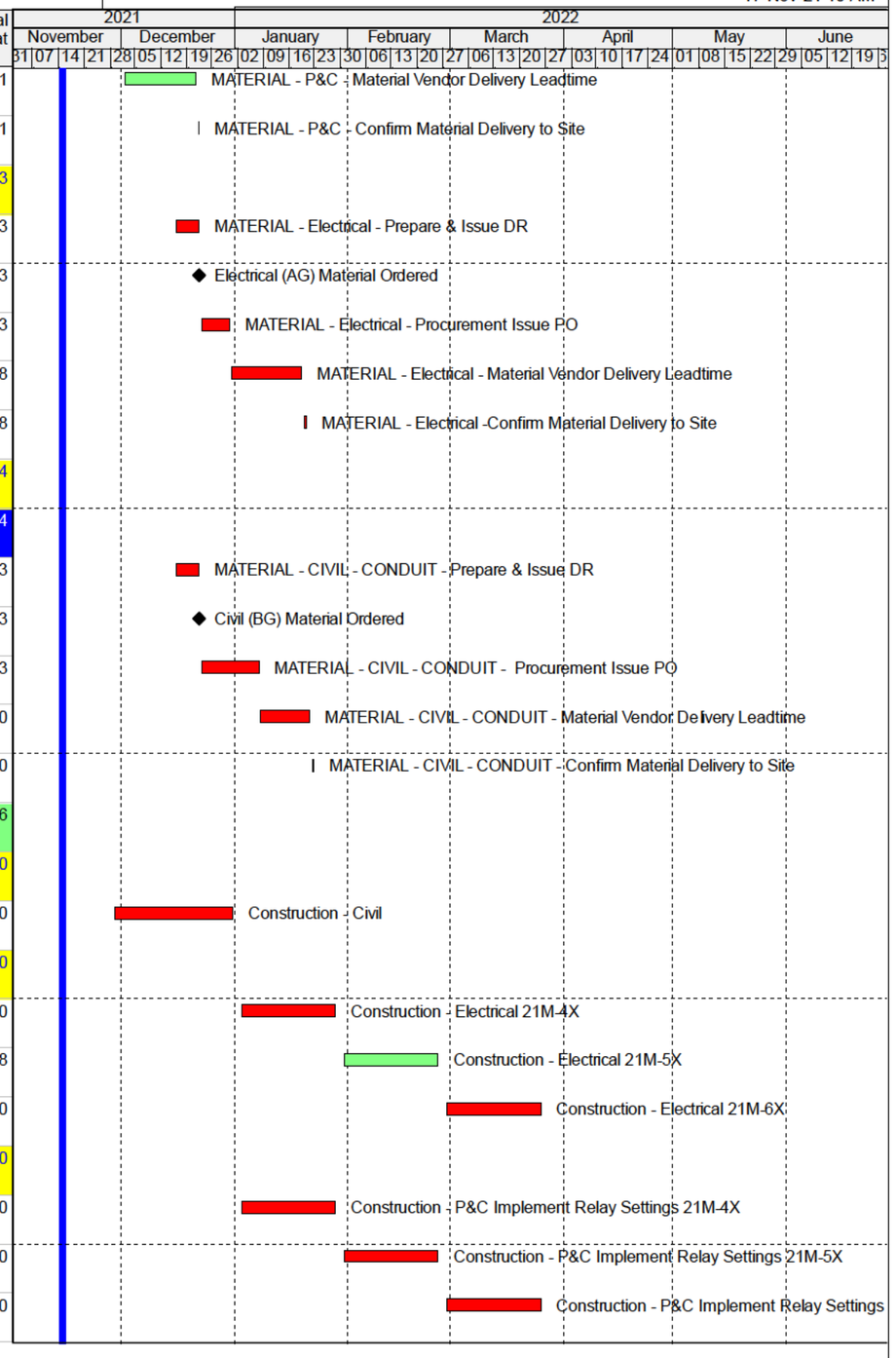
Activity Flag	Activity ID	Activity Name	At pletion	Start	Finish	Resources	Activity Scheduler	Total Float
	DSSE-1000	MATERIAL - P&C - Material Vendor Delivery Leadtime	20	02-Dec-21 08 AM	21-Dec-21 04 PM	Purchasing Department	[redacted]	11
M-DELIV	DSSE-1010	MATERIAL - P&C - Confirm Material Delivery to Site	1	22-Dec-21 08 AM	22-Dec-21 04 PM	Purchasing Department		11
CS00501.06.02 MATERIAL FOR ELECTRICAL			23	16-Dec-21 08 AM	20-Jan-22 04 PM			-13
DR-RM	DSSE-520	MATERIAL - Electrical - Prepare & Issue DR	5	16-Dec-21 08 AM	22-Dec-21 04 PM	CT- Project Engineer Generic		-13
DR-AGMAT	DSSE-530	Electrical (AG) Material Ordered	0		22-Dec-21 04 PM			-13
	DSSE-1020	MATERIAL - Electrical - Procurement Issue PO	5	23-Dec-21 08 AM	30-Dec-21 04 PM	Purchasing Department		-13
	DSSE-1030	MATERIAL - Electrical - Material Vendor Delivery Leadtime	20	31-Dec-21 08 AM	19-Jan-22 04 PM	Purchasing Department		-18
M-DELIV	DSSE-550	MATERIAL - Electrical -Confirm Material Delivery to Site	1	20-Jan-22 08 AM	20-Jan-22 04 PM	Purchasing Department		-18
CS00501.06.03 MATERIAL FOR CIVIL			24	16-Dec-21 08 AM	22-Jan-22 04 PM			-14
CS00501.06.03.02 MATERIAL FOR CIVIL - CONDUIT			24	16-Dec-21 08 AM	22-Jan-22 04 PM			-14
DR-RM	DSSE-1140	MATERIAL - CIVIL - CONDUIT - Prepare & Issue DR	5	16-Dec-21 08 AM	22-Dec-21 04 PM			-13
DR-BGMAT	DSSE-1170	Civil (BG) Material Ordered	0		22-Dec-21 04 PM			-13
	DSSE-1150	MATERIAL - CIVIL - CONDUIT - Procurement Issue PO	10	23-Dec-21 08 AM	07-Jan-22 04 PM	Purchasing Department		-13
	DSSE-1160	MATERIAL - CIVIL - CONDUIT - Material Vendor Delivery Leadtime	14	08-Jan-22 08 AM	21-Jan-22 04 PM	Purchasing Department		-20
M-DELIV	DSSE-1130	MATERIAL - CIVIL - CONDUIT - Confirm Material Delivery to Site	1	22-Jan-22 08 AM	22-Jan-22 04 PM	Purchasing Department		-20
CS00501.07 CONSTRUCTION			91	29-Nov-21 08 AM	08-Apr-22 04 PM			6
CS00501.07.01 CONSTRUCTION - CIVIL			33	29-Nov-21 08 AM	31-Dec-21 04 PM			0
	A1120	Construction - Civil	33	29-Nov-21 08 AM*	31-Dec-21 04 PM	Const Rep Field Sup - Civil		0
CS00501.07.02 CONSTRUCTION - ELECTRICAL			82	03-Jan-22 08 AM	25-Mar-22 04 PM			0
	A1130	Construction - Electrical 21M-4X	26	03-Jan-22 08 AM*	28-Jan-22 04 PM	Const Rep Field Sup - S/S		0
	A1131	Construction - Electrical 21M-5X	26	31-Jan-22 08 AM*	25-Feb-22 04 PM	Const Rep Field Sup - S/S		28
	A1132	Construction - Electrical 21M-6X	26	28-Feb-22 08 AM*	25-Mar-22 04 PM	Const Rep Field Sup - S/S		0
CS00501.07.03 CONSTRUCTION - P&C			82	03-Jan-22 08 AM	25-Mar-22 04 PM			0
	A1140	Construction - P&C Implement Relay Settings [redacted]	26	03-Jan-22 08 AM*	28-Jan-22 04 PM	Construction Rep Generic		0
	A1141	Construction - P&C Implement Relay Settings	26	31-Jan-22 08 AM*	25-Feb-22 04 PM	Construction Rep Generic		0
	A1142	Construction - P&C Implement Relay Settings	26	28-Feb-22 08 AM*	25-Mar-22 04 PM	Construction Rep Generic		0



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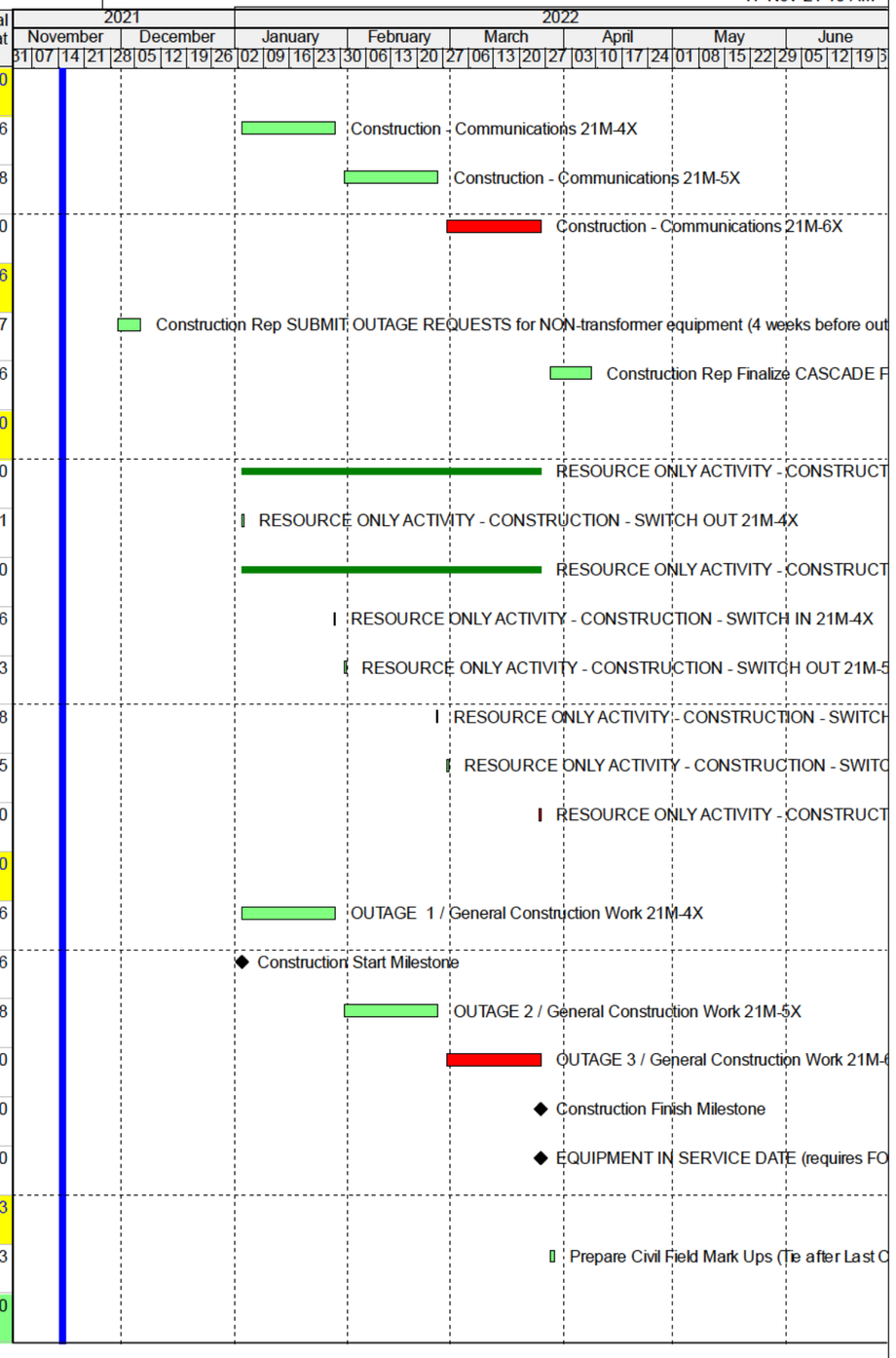
Activity Flag	Activity ID	Activity Name	At pletion	Start	Finish	Resources	Activity Scheduler	Total Float
CS00501.07.04 CONSTRUCTION - COMMUNICATIONS			82	03-Jan-22 08 AM	25-Mar-22 04 PM			0
	A1150	Construction - Communications [redacted]	26	03-Jan-22 08 AM*	28-Jan-22 04 PM	Construction Rep Generic		56
	A1151	Construction - Communications	26	31-Jan-22 08 AM*	25-Feb-22 04 PM	Construction Rep Generic		28
	A1152	Construction - Communications	26	28-Feb-22 08 AM*	25-Mar-22 04 PM	Construction Rep Generic		0
CS00501.07.92 CONSTRUCTION - CONST.REP TASKS			90	30-Nov-21 08 AM	08-Apr-22 04 PM			6
	A1250	Construction Rep SUBMIT OUTAGE REQUESTS for NON-transformer equipment (4 weeks before outage)	5	30-Nov-21 08 AM*	06-Dec-21 04 PM	Construction Rep Generic		17
	A1260	Construction Rep Finalize CASCADE Forms (within 14 days folloiwng ISD)	10	28-Mar-22 08 AM	08-Apr-22 04 PM	Construction Rep Generic		6
CS00501.07.94 CONSTRUCTION RESOURCE TRACKING			82	03-Jan-22 08 AM	25-Mar-22 04 PM			0
	ConRep-S	RESOURCE ONLY ACTIVITY - CONSTRUCTION - CONSTRUCTION REP	82	03-Jan-22 08 AM	25-Mar-22 04 PM	Construction Rep Generic		0
	A1070	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT 21M-4X	1	03-Jan-22 08 AM	03-Jan-22 04 PM	Distribution Switching Crew		81
	CONSTelec	RESOURCE ONLY ACTIVITY - CONSTRUCTION - ELECTRICIAN	82	03-Jan-22 08 AM	25-Mar-22 04 PM	Distribution - S/S Electrician		0
	A1080	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN [redacted]	1	28-Jan-22 08 AM	28-Jan-22 04 PM	Distribution Switching Crew		56
	A1071	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT 21M-5X	1	31-Jan-22 08 AM	31-Jan-22 04 PM	Distribution Switching Crew		53
	A1081	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN 21M-5X	1	25-Feb-22 08 AM	25-Feb-22 04 PM	Distribution Switching Crew		28
	A1072	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH OUT 21M-6X	1	28-Feb-22 08 AM	28-Feb-22 04 PM	Distribution Switching Crew		25
	A1082	RESOURCE ONLY ACTIVITY - CONSTRUCTION - SWITCH IN 21M-6X	1	25-Mar-22 08 AM	25-Mar-22 04 PM	Distribution Switching Crew		0
CS00501.07.96 CONSTRUCTION OUTAGES			82	03-Jan-22 08 AM	25-Mar-22 04 PM			0
OUT	TOA-Const 1	OUTAGE 1 / General Construction Work [redacted]	26	03-Jan-22 08 AM*	28-Jan-22 04 PM	Construction Resources		56
CRH	CSM	Construction Start Milestone	0	03-Jan-22 08 AM				56
OUT	TOA-Const 2	OUTAGE 2 / General Construction Work [redacted]	26	31-Jan-22 08 AM*	25-Feb-22 04 PM	Construction Resources		28
OUT	TOA-Const 3	OUTAGE 3 / General Construction Work	26	28-Feb-22 08 AM*	25-Mar-22 04 PM	Construction Resources		0
	CFM	Construction Finish Milestone	0		25-Mar-22 04 PM			0
ISD	ISD	EQUIPMENT IN SERVICE DATE (requires FOOB constraint)	0		25-Mar-22 04 PM*			0
CS00501.07.98 CONSTRUCTION CLOSEOUT			2	28-Mar-22 08 AM	29-Mar-22 04 PM			3
	DSSE-900	Prepare Civil Field Mark Ups (Tie after Last Civil Construction Activity)	2	28-Mar-22 08 AM	29-Mar-22 04 PM	Construction Resources		3
CS00501.10 PROJECT CLOSE OUT			46	28-Mar-22 08 AM	31-May-22 04 PM			0



Remaining Level of Effort | Remaining Work | Mile... | Actual Work | Critical Remaining Work

TASK filter: Not Complete.

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Activity Flag	Activity ID	Activity Name	At pletion	Start	Finish	Resources	Activity Scheduler	Total Float
	DSSE-1100	Complete TD-707 Turnover Document / Forward to SOC & Mailing List	5	28-Mar-22 08 AM	01-Apr-22 04 PM	Construction Rep Generic, David M. Hynes	[redacted]	0
CS00501.10.01 Civil As-Builts			41	04-Apr-22 08 AM	31-May-22 04 PM			0
	DSSE-860	Eversource Engineering Verifies Civil Mark Up As-Built Drawing Package	10	04-Apr-22 08 AM	15-Apr-22 04 PM	CT- Project Engineer Generic, CT		0
	DSSE-970	Eversource Engineering Updates Civil As-Built Drawing Package	3	18-Apr-22 08 AM	20-Apr-22 04 PM	CT- Substation Design Drafter Generic, CT		0
ES-ASB	DSSE-870	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	8	21-Apr-22 08 AM	02-May-22 04 PM	CT- Substation Design Drafter Generic, CT		0
	DSSE-880	PM to Document Civil As-Built Drawings Complete	1	03-May-22 08 AM	03-May-22 04 PM	David M. Hynes		19
	DSSE-1120	Complete TD-176 CIVIL Design Prep & Issue As-Built Dwgs	20	03-May-22 08 AM	31-May-22 04 PM	CT- Substation Design Drafter Generic		0
CS00501.10.02 Electrical As-Builts			41	04-Apr-22 08 AM	31-May-22 04 PM			0
	DSSE-820	Eversource Engineering Verifies Electrical Mark Up As-Built Drawing Package	10	04-Apr-22 08 AM	15-Apr-22 04 PM	CT- Project Engineer Generic, CT		0
	DSSE-940	Eversource Engineering Updates Electrical As-Built Drawing Package	3	18-Apr-22 08 AM	20-Apr-22 04 PM	CT- Project Engineer Generic, CT		0
ES-ASB	DSSE-830	ES Create Transmittal, Approve Final As-Built Package, and EDC Files and Issue Drawings to Field	8	21-Apr-22 08 AM	02-May-22 04 PM	CT- Substation Design Drafter		0
	DSSE-840	PM to Document Electrical As-Built Drawings Complete	1	03-May-22 08 AM	03-May-22 04 PM	[redacted]		19
	DSSE-1110	Complete TD-176 Electrical Design Prep & Issue As-Built Dwgs	20	03-May-22 08 AM	31-May-22 04 PM	CT- Substation Design Drafter Generic		0
CS00501.10.03 P&C As-Builts			10	28-Mar-22 08 AM	08-Apr-22 04 PM			8
	DSSE-960	P&C Submits Relay Setting As-Builts	5	28-Mar-22 08 AM	01-Apr-22 04 PM	CT- P&C Engineer Generic		13
	DSSE-950	P&C Submits SDS As-Builts	5	04-Apr-22 08 AM	08-Apr-22 04 PM	CT- P&C Engineer Generic		8
CS00501.10.05 SITE RESTORATION CLOSEOUT			10	28-Mar-22 08 AM	08-Apr-22 04 PM			36
	A1110	Restore / Remediate Site	10	28-Mar-22 08 AM	08-Apr-22 04 PM	CT/WMA.Constru Contractor-GENE		36
CS00501.10.06 MATERIAL, EQUIPMENT, COST, AND ASSET MANAGEMENT CLOSEOUT			40	28-Mar-22 08 AM	20-May-22 04 PM			6
	A1020	Cost Analyst Prepares FINAL Units of Property	30	28-Mar-22 08 AM	06-May-22 04 PM	CT- Cost Analyst Generic		16
	A1030	Asset Management Complete Asset Update(s) in CASCADE	30	11-Apr-22 08 AM	20-May-22 04 PM	[redacted]		6
CS00501.10.07 PROJECT MANAGEMENT CLOSEOUT			46	28-Mar-22 08 AM	31-May-22 04 PM			0
	A1040	PM Prepares Closeout Documentation, Lessons Learned Meeting, etc.	30	28-Mar-22 08 AM	06-May-22 04 PM	[redacted]		16
	FINISH	Project / Work Order Complete (FINAL SCHEDULE TASK/MILESTONE)	0		31-May-22 04 PM			0
CS00501.13 OVERHEAD / INDIRECTS			10	17-Dec-21 08 AM	03-Jan-22 04 PM			-1
CS00501.13.01 PROJECT MANAGEMENT			10	17-Dec-21 08 AM	03-Jan-22 04 PM			-1



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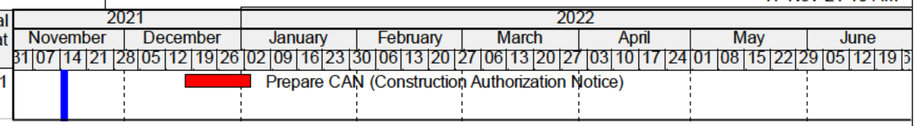
Activity Flag	Activity ID	Activity Name	At pletion	Start	Finish	Resources	Activity Scheduler	Total Float
	A1170	Prepare CAN (Construction Authorization Notice)	10	17-Dec-21 08 AM*	03-Jan-22 04 PM	[redacted]		-1



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EVERSOURCE
Constructability Review Form: **Substation**

Project Title: [redacted]	☐	Prior Constructability Review Performed?
	☐	Program Related Site Specific Review?
Project Number(s): CSC0501	**Project Constructability Phase:**	
Date(s) of Constructability Review: ~~08/19/2020~~ 7/14/21	☐ Conceptual Engineering Design	
Click to enter a date	☐ Preliminary Engineering Design	
	☒ Detailed Engineering Design	
Project Scope Statement: Install DSCADA LTC controls at [redacted]		

Department Review/Walkdown Attendees*:

Required [X]	Attended [X]	Department	Name	Required [X]	Attended [X]	Department	Name
☐	☒	Project Management	D. Hynes	☐	☒	S/S Engineering	[redacted]
☐	☐	Asset Management		☐	☐	P&C Engineering	
☐	☒	Constr. Management	[redacted]		☒	Civil Engineering	
☐	☐	S/S Technical / LCE			☐	Telecom	
☐	☒	S/S Operations**			☐	Environmental	
☐	☐	Field Engineering			☐	Real Estate	
☐	☐	Line Engineering			☐	T&D ROW	
☐	☐	Vegetation Management			☐	Survey Engineering	
☐	☐	Siting			☐	Cost Estimating	
☐	☐	Safety			☐	Outreach (SCS)	
☐	☒	SCADA			☐	Material Procurement	

*** Sign-off in the table above for the Detailed Engineering Design Constructability Review indicates that all Action Items/Concerns from prior Constructability Reviews have been mitigated/resolved as documented in this form. Not every department is required to attend walkdowns for every project but should be consulted for project impact considerations**

** Internal Eversource Substation Operations must be included in the review even if external construction resources are planned

[Project Manager] certifies that this review was performed to completeness, that all applicable departme[redacted] and have had opportunity to provide input to this review:_____ *Name / Signature* 7/14/21

EVERSOURCE

Constructability Review Form: **Substation**

Documents available for use prior to Constructability Review					
[X]	Document	[X]	Document	[X]	Document
☐	Initial Scope -Birdseye site plan -General Arrangement	☐	Preliminary Drawings -Civil Site Drawing -Electrical Drawing -Section Drawings	☒	Prints in hand for marking up -Panel Front/Read View -Control Enclosure Layout -Floor / Wall Plans
☐	Detailed Scope Document	☒	Proposed Schedule	☐	Construction Sequence/Timeline
☐	Previous Notes / Comments / Observations	☒	Major Material / Equipment List	☐	Replace / Reuse of equipment

Action Items and Resolutions:

Item No.	Const. Review Action Item/Concern	Design Resolution/Mitigation:
1	Need conduit for fiber to control house	Eng to issue new civil drawings for new conduit
2	Replace controls during upgrade	Eng to issue new drawings and order materials for new controls
3		
4		
5		

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
A	**Engineering & Asset Management**		
1	**Scope of Work** - Is scope adequately developed and sufficiently detailed for intended deliverable? - Any complimentary projects or other adjacent obsolete equipment for inclusion? - Any overlapping projects that could impact work/outages? - Consider Physical Installation, P&C Scope, Civil Scope, Engineering studies, Design standard adherence - Any remote station impacts? - Engineering Estimates for Design and Technical Support? (EE and EOC) Total Project	☐	No concerns

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
2	**Materials Identified/Ordered** -Any concerns with BOM/Major Materials? Review BOM lead times and project need dates -Specialty Major Materials: Identify Specialty Equipment & Materials potentials - temporary/replacement - long lead items? -Any Materials needed to facilitate construction access?		Eng to order materials
3	**Control House** - Review Unmapped equipment interferences, Control/Battery Enclosure Layout, HVAC System (if equipment added), space for new or modified equipment, AC / DC station breaker availability and service loading, Panel Space, Expansion, one-line and/or riser type panelboard drawings, other..		No issues
4	**Ratings & Dimensions** for Major Equipment. Any concerns upon field review? Equipment Rating One Line (and/or equipment thermal ratings tables) - Review for any errors in field	N/A	
5	**Wall, Fence, Gate, and Foundation Considerations** -Any permanent / temporary alterations or relocations required? -Pre-Project Sound Measurements Needed? Sound Walls? -Take measurements for Foundation quantities, dimensions and concrete volumes -CIP Review/Ballistic needs. Any Physical Security Requirement Consideration? -Assess condition of existing yard equipment foundations and viability for reuse (if proposed) -Review station expansion areas (if needed) for structures, old foundations, etc. -Any Steel Structural Plan Considerations? -Any impacts to construction plan?	☐	N/A
6	**Below Grade / Enclosure Raceway** - If possible, evaluate existing raceway and review spacing requirements. Review for any subsurface investigation needs or potential below grade obstructions. GPR/test pits needed? Geotechnical Investigation - is soil boring or resistivity investigation needed?	N/A	

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
7	**Underground Obstructions** -Drawing review concerns? -Is preconstruction or test excavation needed? -Is reuse of underground control cables / Conduits /replace Non-Shielded Cable feasible (if applicable) -Are spare conduits available? Are they useable? -Review if any areas will need to be plated for increased load bearing for equipment access (i.e. large Xfmr, etc.)		No issues
8	**Grounding Plan (Ground Grid)** - Will footprint impact layout or other equipment? Identify locations to improve grounding. Impacts to foundations and ground grid plans. Observations on wetlands or ability to perform tests	☐	N/A
9	Nomenclature / Switching One-Line Diagram -Any obvious deviations from diagrams provided?	☐	N/A
10	BPS Separation Requirements - Is this BPS Substation? Y/N (part of PAF) - Changes to pre-existing BPS standards?	☐	N/A
11	IEC 61850 Substation Automation and Communication Requirements - Any Impacts/Retrofit needed?	☐	N/A
12	Any Upgrades to ES Standards - Is retrofit needed to bring up to ES standards? Can that be done?	☐	N/A
B	**Construction**		
1	**Any safety hazards specific to the facility? i.e. Low Bus, Deterioration, etc.**	☐	N/A
2	**Prior known Site Specific Conditions** -Common or Obvious station Issues -Missing scope items that could impact costs?	☐	No issues
3	**Identify/Consider Required Depts for Construction?** -Who is constructor: Internal vs External Resources -S/S Ops, GO, Test, Field Engineering, etc	☐	N/A

EVERSOURCE
Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
	-Specialty Contractors Required? -Required Oversite Needed - Estimated level of CR and LCE support needed		
4	**Site Plan, Access, and Temporary Construction Facilities:** -Confirm maintenance access for proposed new or replaced equipment -Verify clear footprint for yard equipment / Property Plan -General access to site, can areas outside substation be utilized? -Substation Entry Plan (driveway and drive path modifications) - Identification of Unique Requirements, i.e. (access bridges, station service, etc.) -Site Development Plan (grading and drainage) with Cut/Fill -Existing Rock Conditions? Potential Impacts (rock quantity)? -Any police details needed for deliveries, restricted hours, and/or need for extended hour approvals -Any Sanitary Civil Requirements? (Septic tanks, etc) -Review turning radius for delivery trucks (if critical) -Any Substation Access and site/yard access Limitations? -Office Trailer Needs: Facilities, Utilities, Restroom, Container, Dumpster Space -Weather impacts to Site (Snow Placement) -Identify Material Laydown and Security -Where will new vs removed equipment go? -Construction permit for trailers outside substation fence?	☐	No issues
5	Unique Equipment Considerations: Gas insulated substation, Gas insulated line, Gas insulated bus, Pass Breaker, Statcom, Sync Condenser		N/A

EVERSOURCE
Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
6	**Outage & Energization Plan and Construction Sequence:** *Review electrical working clearances for equipment during construction, Detailed look at protection zone changes, Locked sequence or random outages, Outage durations minimized.* ***Considerations:*** -Approach Distances – Outage Requirements to maintain electrical clearances throughout proposed installation -Distribution Clearances -Clearance Holder Assignments -Drawings vs Field Conditions -Outage boundaries and interconnections -Phased approach needs for additional mobilizations -Verify outage sequence supports the planned construction sequence and timeline. (Lead Commissioning Engineer "LCE", Substation Operations, and Outage Planner input) -Any design alterations or considerations to Eliminate SCLL Conditions, Reduce Recall Time, Reduce Outage durations, Special Conditions -Additional outage requirements: Railroad Catenaries, Fiber outage, SCADA outage, Relay permissions -Seasonal or weather conditions impacts	☐	No issues
7	**Equipment Testing & Acceptance** -Grounding plans / Resources? Will we need grounds hung? -Hi-pot testing and where will the equipment be set up?	☐	N/A
8	Need for mobile generator and where connected (if needed)	☐	N/A
9	Need for mobile battery and where connected (if needed)	☐	N/A
10	OT work required or Notable Permit Conditions (special hours)?	☐	N/A
11	Coordination of boundaries/seams (Identification of point of demarcation for connection to existing equipment and/or for coordination with other municipalities)	☐	N/A

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
C	**Environmental**		
1	Soil Pre-Characterization or Grab Sampling Completed/Planned	☐	N/R
2	**Desktop investigation and EAD Review** -Required Permits -Stormwater Considerations -Dewatering requirements -Wetland and buffer review	☐	N/A
3	Risk or presence of PCB's/Asbestos/Lead/SF6	☐	N/A
4	Transformer Spill Containment Recommended?	☐	N/A
5	Expanding Footprint / New Buildings or future Expansion Plans? (Enviro Impact)	☐	N/A
6	Environmental oversight considerations? (Inspection type/Interval)	☐	N/A
7	Environmental mitigations - Any matting or seasonal needs? Review D&M Plan with CR.	☐	N/A
D	**Siting, S&CS, and T&D Real Estate**		
1	**Any regulatory concerns or approvals needed?** - Consider scope/design alterations to mitigate concerns - Consider Visual screening considerations (feasibility or location) -Zoning Relief and Permits required	☐	N/A
2	**Neighbor/Abutter impacts:** - Any noise, visual impacts, or sensitive abutters - Any changes to lighting or additional lighting needed?	☐	N/A
3	Review for roadway, gate access, trailers, equip height, noise, weekend/night work, or any potential public disturbance related to work	☐	N/A
4	Installation within Eversource Rights - Is Rights and Restrictions Review required?	☐	N/A
5	Expanding Footprint / New Buildings or future Expansion Plans?	☐	N/A
6	Proposed Equipment on same property? - Any Encroachments	☐	N/A

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
F	**Protection & Controls**		
1	Panel Graphic additions and/or Modifications	☐	N/A
2	Space on existing panels for new equipment? (front & rear of panel fronts)	☐	N/A
3	Panel fronts conform to drawings	☐	N/A
4	Access to bring new panels into control enclosure	☐	N/A
5	Nameplate list and location of nameplates	☐	N/A
6	Verifies that relays and meters that will be an interconnected project work are as shown on the drawings.	☐	N/A
7	Temporary protection, relays, control cable needed? How long will they be required?	☐	N/A
8	Will relay setting changes be needed? Any additional outage requirements for changes?		N/A
G	**Telecom Engineering**		
1	Review telecom equipment in existing control enclosure	☐	N/A
2	Review path to get telecom circuits into the station and paths within the control house. Determine whether new underground duct or overhead tray work is needed.	☐	N/A
3	Review current or proposed Telecom equipment power connections and validate with P&C any need for system 1 and system 2 separation.	☐	N/A
4	Review current Telecom fiber diversity and validate with P&C any fiber diversity requirements.	☐	N/A
5	Review and list any remote station impacts/updates	☐	N/A
6	Confirm whether correct interface equipment is available (i.e.) for fiber termination or multiplexor termination	☐	N/A
7	Confirm whether existing communications cabinets are enough to support additional telecommunications equipment installed	☐	N/A

EVERSOURCE

Constructability Review Form: **Substation**

	Key Review Item Description	N/A or No Concern	Review Notes, Concerns, or Additional Info Needed
8	Review space for any required additional communications cabinets which may be required to support additional telecommunications equipment installed	☐	No issues
9	Review third party Telecommunications at substation and confirm whether additional capacity or Ground Potential Rise protection is required	☐	N/A

Photos

(Ex. Equipment control cabinet, Breakers, MODs, CCVTs, PTs, Transformers)

[redacted]

EVERSOURCE

Operations Program Level Project Authorization Form

Approved at March 17, 2021 SDC

Link to Meeting Minutes

Date Prepared: 05/11/2021	**Program Title**: DSCADA LTC Receivers Program Upgrades
Company: Eversource CT	**Program Number:** CS00407
Organization: Asset Management	**Class(es) of Plant:** D SS
Project Initiator: [redacted]	**Project Category:** Stations - SCADA
Project Manager: [redacted]	**Project Type:** Program
Project Sponsor: [redacted]	**Project Purpose:** Replace Obsolete Radio System
Estimated in service date: Q4 2030	**If Transmission Project: PTF/Non-PTF? N/A**
Eng. / Constr. Resources Budgeted? Yes	**Capital Investment Part of Original Operating Plan?** Yes
Authorization Type: Program Approval with Initial Funding	**O&M Expenses Part of the Original Operating Plan?** N/A
Initial Funding Request: $250K	**Estimated Program value (CT):** $45M

Financial Requirements:

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This Initial Funding Request of $250K is to establish a program to [redacted]

[redacted]

[redacted]

Background details:

$8.5M in total prior costs were charged under the original 2015 CS00090 general one-time approval program through 2020. Sixty-six (66) workorders remain open or in service in Power Plan™. Eighteen (18) of the original work orders were completed for a total direct cost of $4.5M. The total direct cost budget approved for CS00090 was $5.808M, so total direct costs had not exceeded the +/- 10% limit of the APS-1 procedure. As construction, system operations control, and regulatory scope requirements grew, costs per unit increased substantially. Therefore, it was determined that the remainder of the work would be completed as a new program with release documentation to better provide comparable data for each remaining station's scope for improved control and tracking. Accordingly, units / stations with completed construction on the previous CS00090 will remain on that project.

The original program's scope creep was primarily the result of SOC requirements and expectations for voltage tap changer control and position indication. As originally proposed, the scope for the program was primarily for relay and DSCADA connectivity to abandon the obsolete and failing radio control system. The estimate did not account for these additional SOC requirements. CS00090 program documentation is attached for reference.

[redacted]

Planned Releases

Upon approval of this Initial Funding, three releases are planned for three substations with a

[redacted]

Project Costs Summary

Estimates include man-days for outsourced Lead Commissioning Engineer (LCE), and Construction Representative. Material estimates, labor estimates, and vendor quotes are based on recently completed work in 2020. All new equipment shall be installed within the confines of the existing fenced stations. Estimate for an individual substation will be developed during initial funding based on existing infrastructure at a substation. For example : the type of tap changer control, ability to reuse existing conduits to pull fiber, and the capability to use existing communication device to communicate with new device will all be identified to improve the accuracy of the estimate and control costs going forward.

The LTC DSCADA upgrade for each substation / transformer location is expected to follow one of three possible cost scenarios. Accordingly, the cost for each scenario will vary depending on the actual infrastructure and equipment condition. The funding provided by this Initial PAF will facilitate work scope definition at each substation. Some may need conduit installation; some may simply only need wiring and some a new tap changer control and / or combination of this items. All will require testing and commissioning. As a result of these scenarios, there are three (DME) estimates that reflect the different costs in cost ascending value:

1. LTC control upgrade only, existing control & conduit (least cost)
2. LTC control upgrade, new conduit, existing control
3. LTC Control upgrade, new control & conduit (most cost)

Table -1

Cost of D-SCADA LTC Project Scenarios

Description	1. Upgrade Only – existing Control & Conduit	2. Upgrade & Conduit – existing Control	3. Upgrade, New Control & Conduit
ROW / Easements / Land purchases			
Environmental Approvals / Permits			
Outreach	$1,900	$2,200	$3,200
Siting Approvals / Permits			
Engineering / Design	$10,400	$12,600	$17,600
Materials (Eversource purchased)	$18,400	$18,600	$26,200
Construction (incl. matl's by contractors)	$69,800	$90,900	$126,100
Testing / Commissioning	$61,300	$61,300	$94,200
PMT Project Mgmt Team	$10,500	$10,500	$10,500
Removals	$2,300	$2,300	$2,300
Other			
Risks	$63,200	$63,200	$71,000
Project Directs Total w/Risks	**$237,800**	**$261,600**	**$351,100**
Indirects/Overhead	$117,200	$134,000	$188,400
AFUDC	$9,600	$10,700	$14,600
Project Total - Baseline Budget	**$364,600**	**$406,300**	**$554,100**
Contingency			
Project Total - Funding Approval Level	**$364,600**	**$406,300**	**$554,100**
Reimbursables/Customer Contribution	**Not applicable**	**Not applicable**	**Not applicable**
Project Total (less reimbursables)	**$364,600**	**$406,300**	**$554,100**

Technical Justification:

Project Need Statement

[redacted]

Project Objectives

[redacted]

Project Scope

[redacted]

[redacted]

[redacted]

Background / Justification

[redacted]

[redacted]

Business Process and / or Technical Improvements:

As the future of the grid evolves, remote voltage control will become critical to meet the requirements for Distributed Generation systems and provide energy savings. In addition to the ability to remotely control voltage at the LTCs, it is anticipated that remote control of the distribution capacitors and regulators will become necessary in the future (not part of this project). Adding this functionality to the LTCs as part of this DSCADA project is the most cost-effective manner for this work to be done.

Alternatives Considered

Eversource evaluated the following three alternatives:

1. [redacted]

   Cost estimate $554,100 (planning grade)

2. [redacted]

3. [redacted]

Project Schedule

All project releases in the program will have station specific P6 schedules. The following program schedule lists milestones leading to the start of construction.

Milestone/Phase Name	Estimated Date
SDC Meeting – Operations Program Level Approval with Initial Funding	3/17/2021
Revised with Comments – Operations Program Level Approval with Initial Funding	5/11/2021
SDC / EPAC Meeting Program Approval (email)	5/11/2021
Program Construction Start	Q3 2021
Program Construction Completion	Q4 2030

Due to potential financial and man-hour restrictions, this project will spread 99 LTC transformers over ten years for construction from 2021 – 2030. Engineering and material purchase will be done annually. Each transformer LTC upgrade on average may cost approximately $450K per unit. Justification for the length of this proposed 10-year program is cost. The program's duration can be adjusted if it is determined that the cost per unit is acceptable, and an increased investment in the program over other system needs is justified.

Planned LTC Upgrade Releases for 2021

Substation Name	Project Number	LTC Control	Equip Position
[redacted]			
TOTAL UNITS		9	

EVERSOURCE

Planned LTC Releases for 2022

Substation Name	Project Number	LTC Control Count	Equip Position
[redacted]			
TOTAL UNITS		13	

Planned LTC Releases for 2023

Substation Name	Project Number	LTC Control Count	Equip Position
[redacted]			
TOTAL UNITS		8	

Planned Number of LTC Releases (Unspecified Stations) for Years 2024 – 2030

Engineer and Upgrade LTC	Estimated In Service Date
10 Transformers	12/31/2024
10 Transformers	12/31/2025
10 Transformers	12/31/2026
10 Transformers	12/31/2027
10 Transformers	12/31/2028
10 Transformers	12/31/2029
9 Transformers	12/31/2030
69 Transformers	TOTAL UNITS

Regulatory Approvals

No advance regulatory approval is required for this project.

Risks and Risk Mitigation Plans

[redacted]

Contingency

None at the Program level.

References

ISO-NE Operating Procedure No. 13 – Standards for Voltage Reduction and Load Shedding Capability.

Attachments

Figure1
CONVEX LMS System



ESTIMATE SUMARY

Project Title: EVERSOURCE CT - DSCADA LTC CONTROLS UPGRADE
Proiect Mar/Lead:
Project Number:CS00407
WO & Task #:
Est. Revision #
Estimate Type - Station work

Estimate By: [redacted]
Date of Estimate: 02/09/2021
ISD:12/31/2021
Estimate #

Template Revision # 01.53

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2021	2022	2023	2024	2025	2026
1	ROW / Easements / Land purchases										
2	Environmental Approvals / Permits										
3	Outreach	$1,900	0.8%	0.5%		$1,900					
4	Siting Approvals / Permits										
5	Engineering / Design	$10,400	4.4%	2.9%		$10,400					
6	Materials (Eversource purchased)	$18,400	7.7%	5.0%		$18,400					
7	Construction (incl matl's by	$69,800	29.4%	19.1%		$69,800					
8	Testing / Commissioning	$61,300	25.8%	16.8%		$61,300					
9	PMT Project Mgmt Team	$10,500	4.4%	2.9%		$10,500					
10	Removals	$2,300	1.0%	0.6%		$2,300					
11	Other										
12	Risks	$63,200	26.6%	17.3%		$63,200					
	Project Directs Total w/Risks	**$237,800**	100.0%	65.2%		**$237,800**					
13	Indirects/Overhead	$117,200		32.1%		$117,200					
14	AFUDC	$9,600		2.6%		$9,600					
	Project Total - Baseline Budget	**$364,600**		100.0%		**$364,600**					
15	Contingency										
	Project Total - Funding Approval Level	**$364,600**		100.0%		**$364,600**					
16	Reimbursables/Customer Contribution										
	Project Total (less reimbursables)	**$364,600**				**$364,600**					
	Amount of Escalation included above										
6	Total materials - Eversource	$18,400				$18,400					
	Total materials - Contractor	$5,600				$5,600					
	Total materials	$24,000				$24,000					
	NOTE: Risk / Contingency is 21% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)										

Estimate Range	**-25%**	-	**25%**	
	$273,000	-	**$456,000**	

COMMENTS:

Project Scope:

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - CT . Station work

Major material
1. One (1) CABINET, ENCLOSURE, LTC DSCADA, AL,24 IN X 18 IN X 14 IN, ANNUNCIATOR
2. One (1) MONITOR, LTC Tap position indicator device
3. 43AMR 3 position switch ("AUTO/MAN/REMOTE")

Notes:
1. Test manhours based on test contractor quote per LTC/transformer
2. Electrical construction manhours based on electrical contractor quote per LTC/transformer
3. Estimate assumes existing conduits can be used to install crush proof fiber between the transformer and the control house or switchgear. An estimated cost of $1,322 per ft to install conduit between transformer and control house or switchgear should be added to the estimate if required
4. Material quote based on previous projects

RISKS

Severe Weather, Delays, OT	$	13.200
Communication System Upgrade	$	50.000

ESTIMATE SUMARY

Project Title: EVERSOURCE CT - DSCADA LTC CONTROLS UPGRADE
Proiect Mar/Lead:
Project Number:CS00407
WO & Task #:
Est. Revision #
Estimate Type - Station work

Estimate By: [redacted]
Date of Estimate: 02/09/2021
ISD:12/31/2021
Estimate #

Template Revision # 01.53

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2021	2022	2023	2024	2025	2026
1	ROW / Easements / Land purchases										
2	Environmental Approvals / Permits										
3	Outreach	$2,200	0.8%	0.5%		$2,200					
4	Siting Approvals / Permits										
5	Engineering / Design	$12,600	4.8%	3.1%		$12,600					
6	Materials (Eversource purchased)	$18,600	7.1%	4.6%		$18,600					
7	Construction (incl matl's by	$90,900	34.7%	22.4%		$90,900					
8	Testing / Commissioning	$61,300	23.4%	15.1%		$61,300					
9	PMT Project Mgmt Team	$10,500	4.0%	2.6%		$10,500					
10	Removals	$2,300	0.9%	0.6%		$2,300					
11	Other										
12	Risks	$63,200	24.2%	15.6%		$63,200					
	Project Directs Total w/Risks	**$261,600**	100.0%	64.4%		**$261,600**					
13	Indirects/Overhead	$134,000		33.0%		$134,000					
14	AFUDC	$10,700		2.6%		$10,700					
	Project Total - Baseline Budget	**$406,300**		100.0%		**$406,300**					
15	Contingency										
	Project Total - Funding Approval Level	**$406,300**		100.0%		**$406,300**					
16	Reimbursables/Customer Contribution										
	Project Total (less reimbursables)	**$406,300**				**$406,300**					
	Amount of Escalation included above										
6	Total materials - Eversource	$18,600				$18,600					
	Total materials - Contractor	$7,800				$7,800					
	Total materials	$26,400				$26,400					
	NOTE: Risk / Contingency is 18.4% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)										

Estimate Range	**-25%**	-	**25%**	
	$305,000	-	**$508,000**	

COMMENTS:

Project Scope:

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - CT . Station work

Major material
1. One (1) CABINET, ENCLOSURE, LTC DSCADA, AL,24 IN X 18 IN X 14 IN, ANNUNCIATOR
2. One (1) MONITOR, LTC Tap position indicator device
3. 43AMR 3 position switch ("AUTO/MAN/REMOTE")

Notes:
1. Test manhours based on test contractor quote per LTC/transformer
2. Electrical construction manhours based on electrical contractor quote per LTC/transformer
3. Estimate assumes existing conduits can be used to install crush proof fiber between the transformer and the control house or switchgear. An estimated cost of $1,322 per ft to install conduit between transformer and control house or switchgear should be added to the estimate if required
4. Material quote based on previous projects

RISKS

Severe Weather, Delays, OT	$	13.200
Communication System Upgrade	$	50.000

ESTIMATE SUMMARY

Project Title: EVERSOURCE CT - DSCADA LTC CONTROLS UPGRADE
Project Mgr/Lead:
Project Number:CS00407
WO & Task #:
Est. Revision #
Estimate Type - Station work

Estimate By: [redacted]
Date of Estimate: 02/09/2021
ISD:12/31/2021
Estimate #

Template Revision # 01.53

ESTIMATE SUMMARY

Estimate Type: Planning

WBS	Description	TOTAL	% of Directs	% of Total	Priors	2021	2022	2023	2024	2025	2026
1	ROW / Easements / Land purchases										
2	Environmental Approvals / Permits										
3	Outreach	$3,200	0.9%	0.6%		$3,200					
4	Siting Approvals / Permits										
5	Engineering / Design	$17,600	5.0%	3.2%		$17,600					
6	Materials (Eversource purchased)	$26,200	7.5%	4.7%		$26,200					
7	Construction (incl matl's by	$126,100	35.9%	22.8%		$126,100					
8	Testing / Commissioning	$94,200	26.8%	17.0%		$94,200					
9	PMT Project Mgmt Team	$10,500	3.0%	1.9%		$10,500					
10	Removals	$2,300	0.7%	0.4%		$2,300					
11	Other										
12	Risks	$71,000	20.2%	12.8%		$71,000					
	Project Directs Total w/Risks	**$351,100**	100.0%	63.4%		**$351,100**					
13	Indirects/Overhead	$188,400		34.0%		$188,400					
14	AFUDC	$14,600		2.6%		$14,600					
	Project Total - Baseline Budget	**$554,100**		100.0%		**$554,100**					
15	Contingency										
	Project Total - Funding Approval Level	**$554,100**		100.0%		**$554,100**					
16	Reimbursables/Customer Contribution										
	Project Total (less reimbursables)	**$554,100**				**$554,100**					
	Amount of Escalation included above										
6	Total materials - Eversource	$26,200				$26,200					
	Total materials - Contractor	$9,500				$9,500					
	Total materials	$35,700				$35,700					
	NOTE: Risk / Contingency is 14.7% of Project Total Costs (incl escal/indirects/AFUDC but excl reimb.)										

Estimate Range	**-25%**	-	**25%**	
	$416,000	-	**$693,000**	

COMMENTS:

Project Scope:

[redacted]

Assumptions/Clarifications:
Indirect rates based on: 11 - CT . Station work

Major material

1. One (1) CABINET, ENCLOSURE, LTC DSCADA, AL,24 IN X 18 IN X 14 IN, ANNUNCIATOR
2. One (1) MONITOR, LTC Tap position indicator device
3. One (1) Beckwith M-2001D Digital Tapchanger Control and adapter panel
4. 43AMR 3 position switch ("AUTO/MAN/REMOTE")

Notes:

1. Test manhours based on test contractor quote per LTC/transformer
2. Electrical construction manhours based on electrical contractor quote per LTC/transformer
3. Civil manhours based on civil contractor quote to excavate 100 ft between transformer and control house or switchgear
4. Material quote based on previous projects

RISKS

Severe Weather, Delays, OT	$	21,000
Communication System Upgrade	$	50,000

Estimate Review Checklist

Type Project to be reviewed: Replace obsolete Radio Controlled sytem on the Transformer. Substation work no conduit, no controls alternative 1

Job Order: CS00407

Requestor: [redacted]usick

Work Order:

Date of Est: 2/9/21

Est#: Review Number C-21-136

Revsion of Est: 0

Job Description: Replace obsolete Radio controlled equipment.

Date of Review: 3/4/21

Estimator: [redacted]

Level of Estimate: Planning

Substation type project	Recommended Risk
Bus, Switch, Insulator, Misc Eqt Upgrades	Planning 7-12%

OH Project	Underground Project

Level Of Review	Purpose of Estimate
Full Review	Planning Study

Items Checked

Indirect Rates Correct? ☐ Yes ☑ No
Minor increases in some rates in new template.

Manpower/Mandays sufficient for project? ☑ Yes ☐ No
If No, explain:

AFUDC rates are current and correctly applied? ☐ Yes ☑ No
Minor changes in AFUDC rate on new template.

Scope deliverables match expectations for est. class? ☑ Yes ☐ No
If No, explain:

PM Support sufficient for proj? ☑ Yes ☐ No
If No System planning or scheduling required.

Milestones and schedule ISD match scope? ☐ Yes ☑ No
Milestones not completed.

Prior spending accounted for? ☐ Yes ☑ No
No priors reported to date.

Escalation allocated correctly across project time frame? ☐ Yes ☑ No
No escalation included project program will be for next ten years and estimate is for work done this year only.

Contingency and Risk in line with est. type? ☐ Yes ☑ No
No contingrency applied.

Construction Rep and LCE sufficient for project? ☑ Yes ☐ No
If No, explain:

Recommendations

Check AFUDC rate minor drop in CT D rate.

Check indirect rates to see if adjustment would increase accuracy.

Add Project management planning and system scheduling.

Adjust risk and contingency. Risk is at 17.3% of total change by moving 5.3% to Contingency and adjusting risk to 12%

Estimate Review Checklist

Type Project to be reviewed: Replace obsolete Radio Controlled sytem on the Transformer. Substation work new conduit, no controls alternative 2

Job Order: CS00407

Requestor: [redacted]

Work Order:

Date of Est: 2/9/21

Est#: Review Number C-21-136

Revsion of Est: 0

Job Description: Replace obsolete Radio controlled equipment.

Date of Review: 3/4/21

Estimator: [redacted]

Level of Estimate: Planning

Substation type project	Recommended Risk
Bus, Switch, Insulator, Misc Eqt Upgrades	Planning 7-12%

OH Project	Underground Project

Level Of Review	Purpose of Estimate
Full Review	Planning Study

Items Checked

Indirect Rates Correct? ☐ Yes ☑ No
Minor increases in some rates in new template.

Manpower/Mandays sufficient for project? ☑ Yes ☐ No
If No, explain:

AFUDC rates are current and correctly applied? ☐ Yes ☑ No
Minor changes in AFUDC rate on new template.

Scope deliverables match expectations for est. class? ☑ Yes ☐ No
If No, explain:

PM Support sufficient for proj? ☑ Yes ☐ No
If No System planning or scheduling required.

Milestones and schedule ISD match scope? ☐ Yes ☑ No
Milestones not completed.

Prior spending accounted for? ☐ Yes ☑ No
No priors reported to date.

Escalation allocated correctly across project time frame? ☐ Yes ☑ No
No escalation included project program will be for next ten years and estimate is for work done this year only.

Contingency and Risk in line with est. type? ☐ Yes ☑ No
No contingrency applied.

Construction Rep and LCE sufficient for project? ☑ Yes ☐ No
If No, explain:

Recommendations

Check AFUDC rate minor drop in CT D rate.

Check indirect rates to see if adjustment would increase accuracy.

Add Project management planning and system scheduling.

Adjust risk and contingency. Risk presently at 15.6% adjust risk to 11% and adjust contingency to 4.6% of total project.

Estimate Review Checklist

Type Project to be reviewed: Replace obsolete Radio Controlled sytem on the Transformer. Substation work new conduit and controls alternative 3

Job Order: CS00407

Requestor: [redacted]

Work Order:

Date of Est: 2/9/21

Est#: Review Number C-21-136

Revsion of Est: 0

Job Description: Replace obsolete Radio controlled equipment.

Date of Review: 3/4/21

Estimator: [redacted]

Level of Estimate: Planning

Substation type project	Recommended Risk
Bus, Switch, Insulator, Misc Eqt Upgrades	Planning 7-12%

OH Project	Underground Project

Level Of Review	Purpose of Estimate
Full Review	Planning Study

Items Checked

Indirect Rates Correct? ☐ Yes ☑ No
Minor increases in some rates in new template.

AFUDC rates are current and correctly applied? ☐ Yes ☑ No
Minor changes in AFUDC rate on new template.

PM Support sufficient for proj? ☑ Yes ☐ No
If No System planning or scheduling required.

Prior spending accounted for? ☐ Yes ☑ No
No priors reported to date.

Contingency and Risk in line with est. type? ☐ Yes ☑ No
No contingrency applied.

Manpower/Mandays sufficient for project? ☑ Yes ☐ No
If No, explain:

Scope deliverables match expectations for est. class? ☑ Yes ☐ No
If No, explain:

Milestones and schedule ISD match scope? ☐ Yes ☑ No
Milestones not completed.

Escalation allocated correctly across project time frame? ☐ Yes ☑ No
No escalation included project program will be for next ten years and estimate is for work done this year only.

Construction Rep and LCE sufficient for project? ☑ Yes ☐ No
If No, explain:

Recommendations

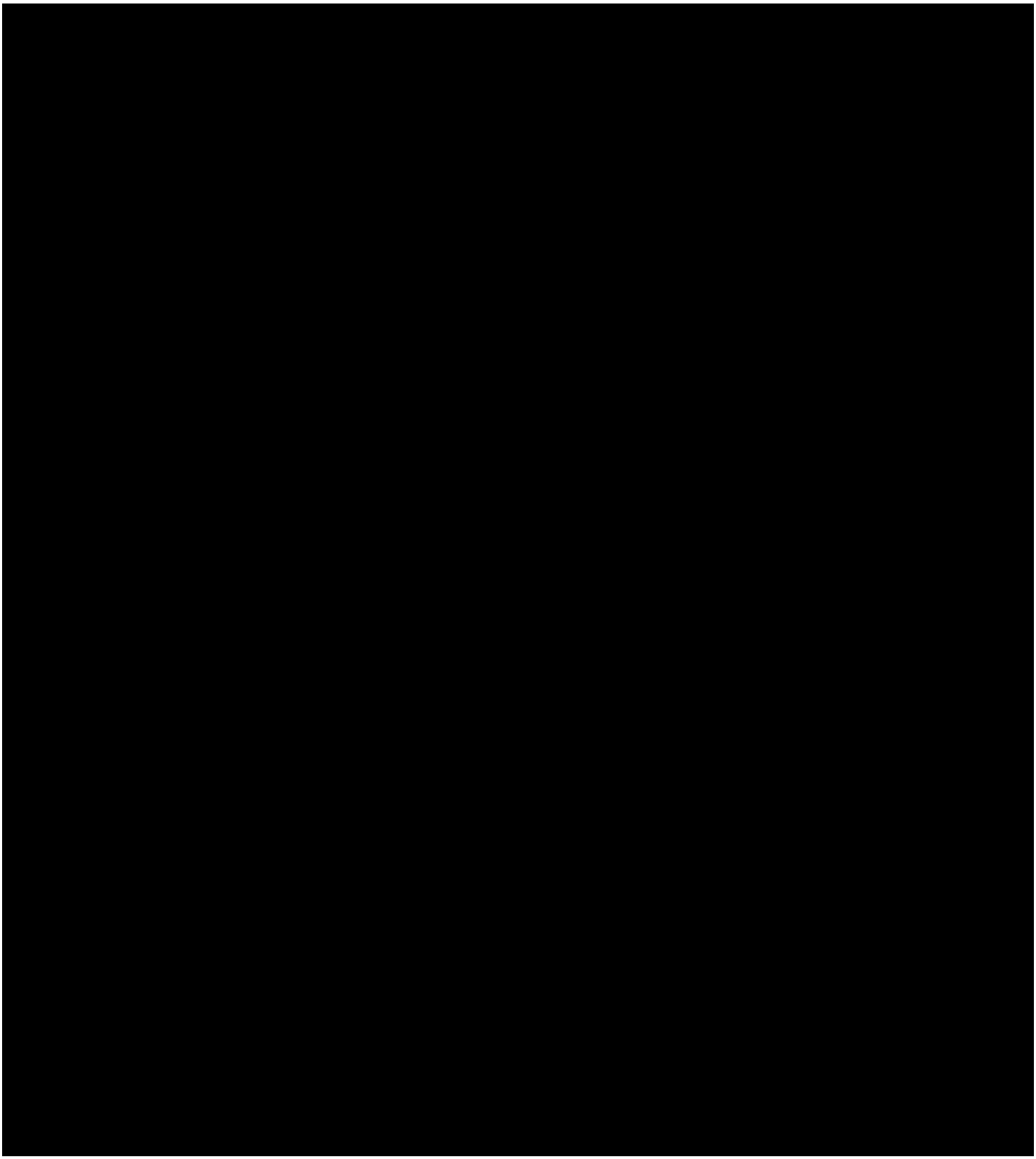
Check AFUDC rate minor drop in CT D rate.

Check indirect rates to see if adjustment would increase accuracy.

Add Project management planning and system scheduling.

Adjust risk and contingency. Risk currently at 12.8% adjust risk to 10% of total and add contingency to 4% of total.

Attachment 2 – Substation – Transformer List

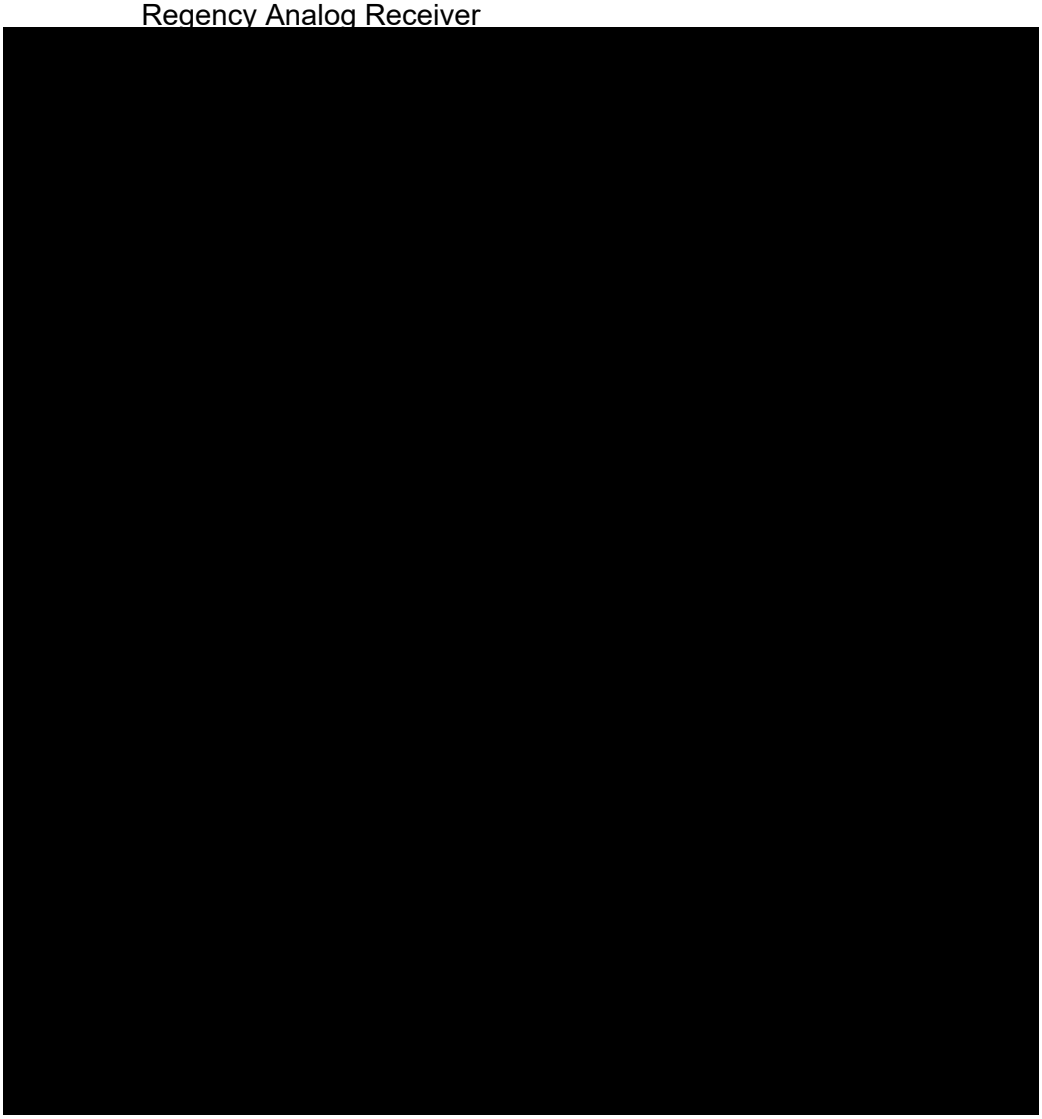


ATTACHMENT 3 - Photos

Pictures of an existing radio receiver that is mounted on the LTCs:



Regency Analog Receiver



New D-DSCADA LTC (RTU) Cabinet that is mounted on the Transformer:

